

WHAT IS CLAIMED

1. For use with a DC-DC voltage converter having a controller which switchably controls operation of first and second electronic power switching devices coupled between respective power supply terminals, and having a phase node thereof coupled through an inductor to a regulated voltage output terminal, a method of protecting one or more load devices that may be coupled to said regulated voltage output terminal, comprising the steps of:

(a) deriving power from and monitoring the voltage at said regulated voltage output terminal;

(b) in response to the voltage monitored in step (a) exceeding a prescribed threshold, turning on said second electronic power switching device in accordance with the voltage at one of said phase node and said regulated voltage output terminal, to thereby provide through said second electronic power switching device a bypass path for an overvoltage that would otherwise be coupled from said regulated voltage output terminal to said one or more load devices.

2. The method according to claim 1, wherein step (b) comprises, in response to the voltage monitored in step (a) exceeding said prescribed threshold, turning on said second electronic power switching device in accordance with the voltage at said phase node, to thereby provide said bypass path for an overvoltage that

would otherwise be coupled from said regulated voltage output terminal so said one or more load devices.

3. The method according to claim 1, wherein step (b) comprises, in response to the voltage monitored in step (a) exceeding said prescribed threshold, turning on said second electronic power switching device in accordance with the voltage at said voltage output terminal, to thereby provide said bypass path for an overvoltage that would otherwise be coupled from said regulated voltage output terminal so said one or more load devices.

4. The method according to claim 1, further including step (c) of, in response to the voltage monitored in step (a) dropping below predetermine value, turning off said second electronic power switching device.

5. For use with a DC-DC voltage converter having a controller which switchably controls operation of first and second electronic power switching devices coupled between respective power supply terminals, and having a phase node thereof coupled through an inductor to a regulated voltage output terminal, an arrangement for protecting one or more load devices that may be coupled to said regulated voltage output terminal, comprising:

an overvoltage detection circuit that derives its power from and is operative to monitor the voltage at said regulated voltage output terminal;

a switching circuit that is operative, in response to the voltage monitored by said overvoltage detection circuit exceeding a prescribed threshold, to turn on said second electronic power switching device in accordance with the voltage at one of said phase node and said regulated voltage output terminal, to thereby provide a bypass path for an overvoltage that would otherwise be coupled from said regulated voltage output terminal to said one or more load devices.

6. The arrangement according to claim 5, wherein said switching circuit is operative, in response to the voltage monitored by said overvoltage detection circuit exceeding said prescribed threshold, to turn on said second electronic power switching device, in accordance with the voltage at said phase node to thereby provide said bypass path for an overvoltage that would otherwise be coupled from said regulated voltage output terminal so said one or more load devices.

7. The arrangement according to claim 5, wherein said switching circuit is operative, in response to the voltage monitored by said overvoltage detection circuit exceeding said prescribed threshold, to turn on said second electronic power switching device, in accordance with the voltage at said output terminal to thereby

provide said bypass path for an overvoltage that would otherwise be coupled from said regulated voltage output terminal so said one or more load devices.

8. The arrangement according to claim 5, wherein said overvoltage detection circuit is operative, in response to the voltage monitored thereby dropping below predetermine value, to cause said switching circuit to turn off said second electronic power switching device.

9. In a DC-DC voltage converter having a controller which generates pulse width modulation (PWM) switching signals that switchably control operation of first and second electronic power switching devices coupled between respective power supply terminals, and having a phase node thereof coupled through an inductor to a regulated voltage output terminal, the improvement comprising:

an overvoltage detector that derives its power from and is operative to monitor the voltage at said regulated voltage output terminal; and

a switch that is operative, in response to the voltage monitored by said overvoltage detector exceeding a prescribed threshold, to turn on said second electronic power switching device in accordance with the voltage at one of said phase node and said regulated voltage output terminal, and thereby provide a bypass path for an overvoltage that would otherwise be coupled

from said regulated voltage output terminal to one or more load devices.

10. The improvement according to claim 9, wherein said switch is operative, in response to the voltage monitored by said overvoltage detector exceeding said prescribed threshold, to turn on said second electronic power switching device, in accordance with the voltage at said phase node to thereby provide said bypass path for an overvoltage that would otherwise be coupled from said regulated voltage output terminal so said one or more load devices.

11. The improvement according to claim 9, wherein said switch is operative, in response to the voltage monitored by said overvoltage detector exceeding said prescribed threshold, to turn on said second electronic power switching device, in accordance with the voltage at said output terminal to thereby provide said bypass path for an overvoltage that would otherwise be coupled from said regulated voltage output terminal so said one or more load devices.

12. The improvement according to claim 9, wherein said overvoltage detector is operative, in response to the voltage monitored thereby dropping below predetermine value, to cause said switch to turn off said second electronic power switching device.